

# GSM3660EX5F

## 30V N-Channel Enhancement Mode MOSFET

### Product Description

GSM3660E, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent  $R_{DS(ON)}$ , low gate charge.

These devices are particularly suited for low voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

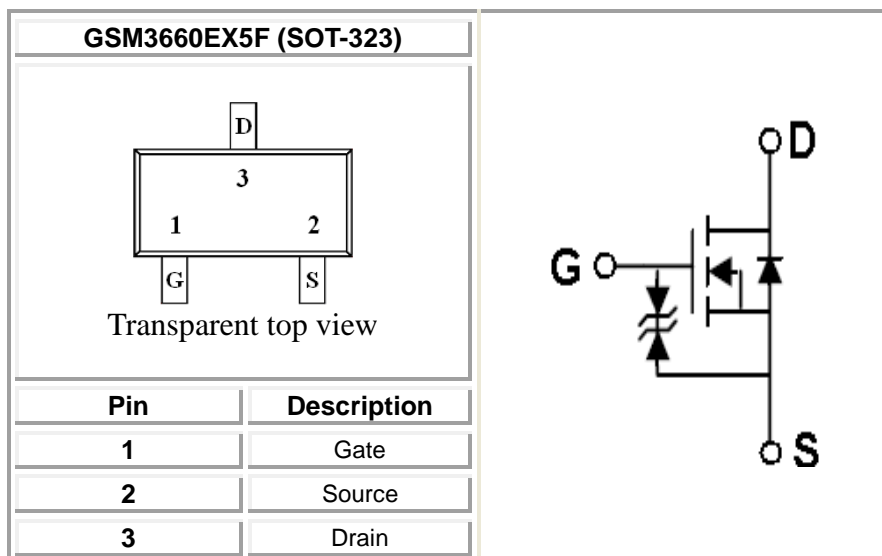
### Features

- Low Gate Charge
- ESD Protected
- SOT-323 package design

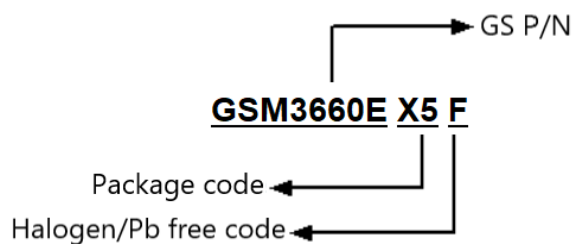
### Applications

- Power Management in Note book
- Portable Equipment
- Load Switch
- 

### Packages & Pin Assignments

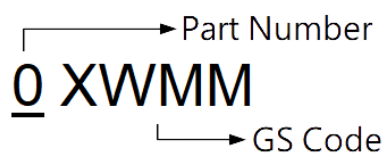


## Ordering Information



Part Number	Package	Quantity Reel
GSM3660EX5F	SOT-323	3000 PCS

## Marking Information



## Absolute Maximum Ratings

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Symbol	Parameter	Typical	Unit
$V_{DSS}$	Drain-Source Voltage	30	V
$V_{GSS}$	Gate-Source Voltage	$\pm 12$	V
$I_D$	Continuous Drain Current( $T_A=25^{\circ}\text{C}$ ) <sup>1</sup>	0.56	A
$I_{DM}$	Pulsed Drain Current <sup>3</sup>	2.3	A
$P_D$	Power Dissipation	0.34	W
$R_{\theta JA}$	Thermal Resistance Junction to ambient <sup>1</sup>	370	$^{\circ}\text{C}/\text{W}$
$T_J$	Operating Junction Temperature Range	-55 to +150	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$

Notes:

- Surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2oz copper.
- Pulse width limited by maximum junction temperature, Pulse Width $\leq 300\mu\text{s}$ , Duty Cycle $\leq 1\%$ .

## Electrical Characteristics

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		1.5	
$I_{GSS}$	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 12V$			10	$\mu A$
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$			100	nA
$R_{DS(on)}$	Drain-Source On-Resistance <sup>3</sup>	$V_{GS}=10V, I_D=0.5A$		345	600	m $\Omega$
		$V_{GS}=4.5V, I_D=0.2A$		425	650	
		$V_{GS}=2.5V, I_D=0.1A$		650	1200	
$g_{FS}$	Forward Transconductance	$V_{DS}=10V, I_D=0.5A$		1.2		S
$V_{SD}$	Diode Forward Voltage	$I_S=0.5A, V_{GS}=0V$			1.35	V
<b>Dynamic</b>						
$Q_g$	Total Gate Charge	$V_{DS}=15V, V_{GS}=10V, I_D=0.5A$		1.5		nC
$Q_{gs}$	Gate-Source Charge			0.2		
$Q_{gd}$	Gate-Drain Charge			0.2		
$C_{iss}$	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1\text{MHz}$		39		pF
$C_{oss}$	Output Capacitance			9		
$C_{rss}$	Reverse Transfer Capacitance			6		
$t_{d(on)}$	Turn-On Time	$V_{DD}=15V, I_D=0.5A, V_{GS}=10V, R_G=2.5\Omega$		5.3		ns
$t_r$				16		
$t_{d(off)}$	Turn-Off Time			20		
$t_f$				18		

## Typical Performance Characteristics

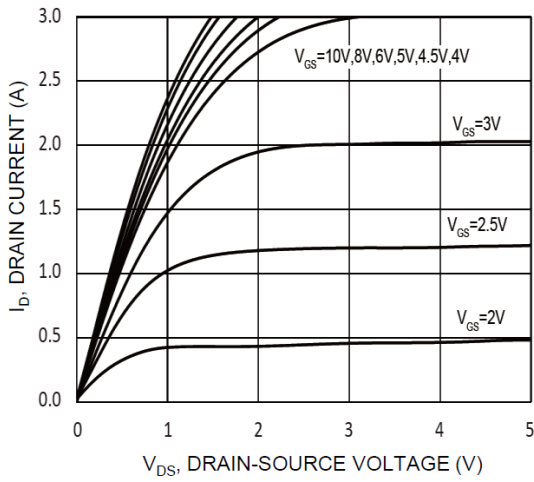


Fig. 1 Typical Output Characteristics

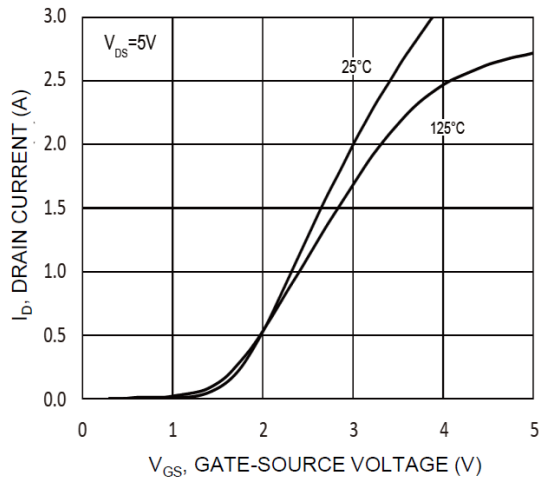


Fig. 2 Typical Transfer Characteristics

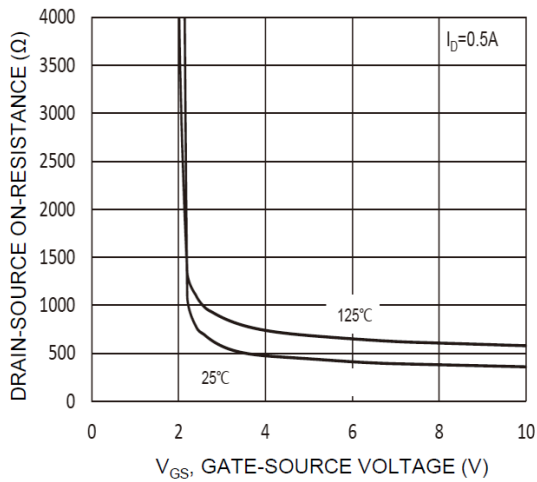


Fig. 3 Typical On-Resistance vs.  $V_{GS}$

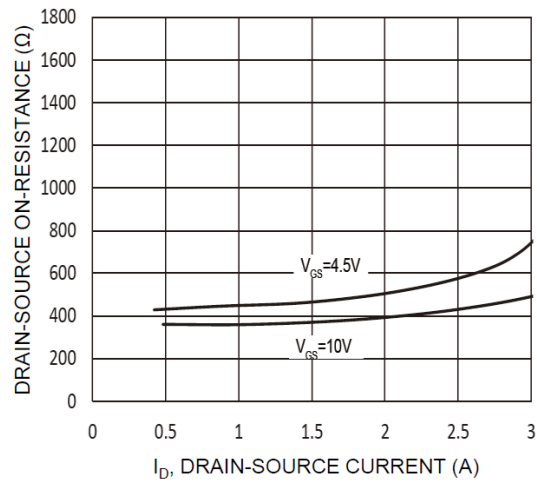


Fig. 4 Typical On-Resistance vs.  $I_D$

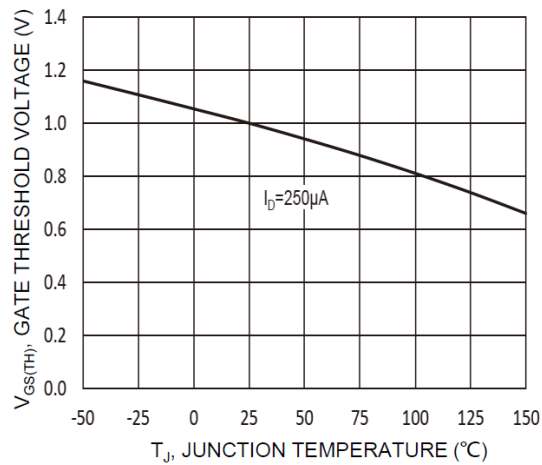


Fig. 5 Normalized Threshold Voltage

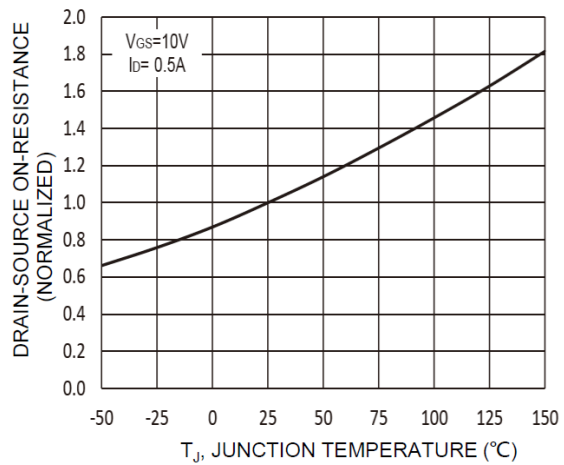


Fig. 6 On-Resistance Variation with  $T_J$

## Typical Performance Characteristics (Continue)

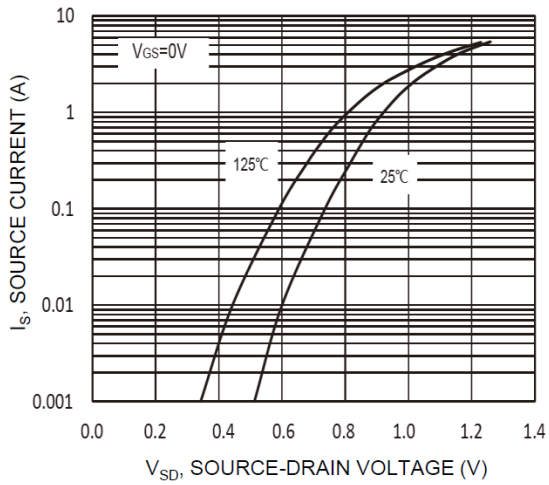


Fig. 7 Diode Forward Voltage vs. Current

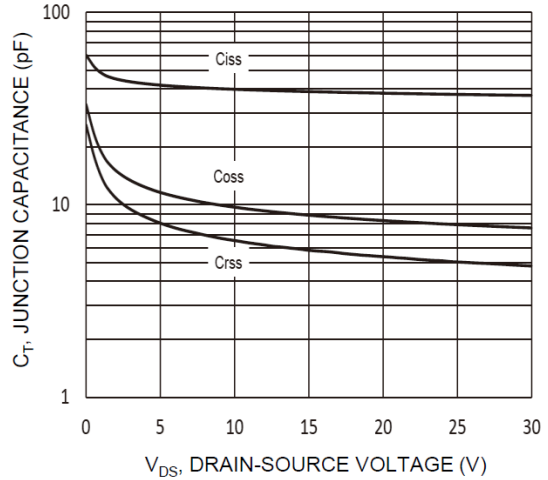


Fig. 8 Typical Capacitance

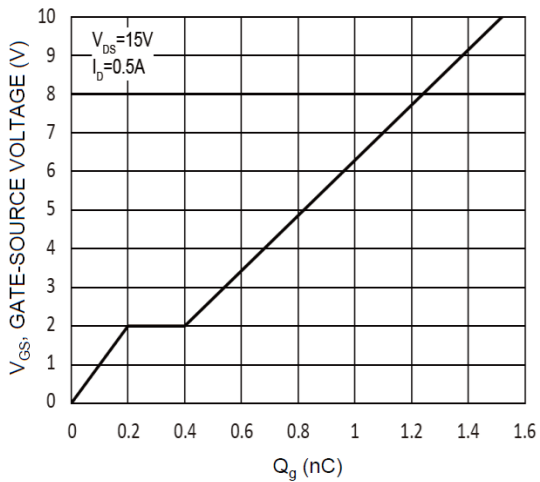


Fig. 9 Gate Charge

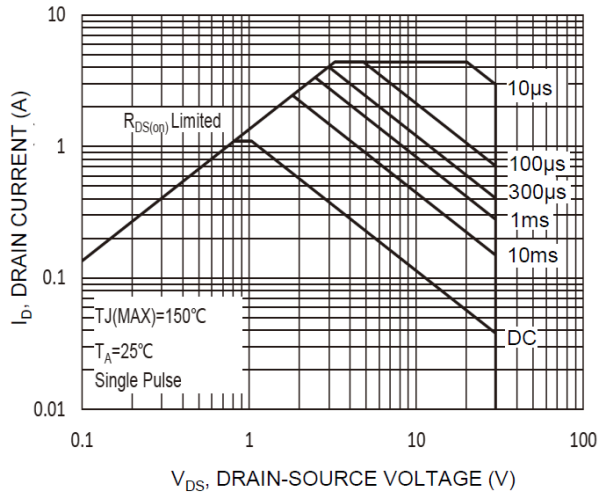


Fig. 10 Safe Operation Area

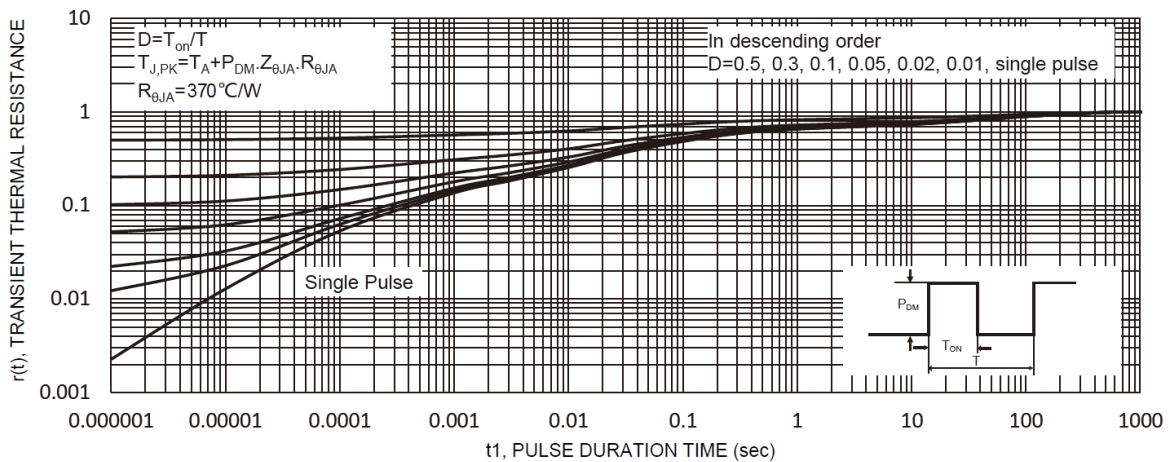
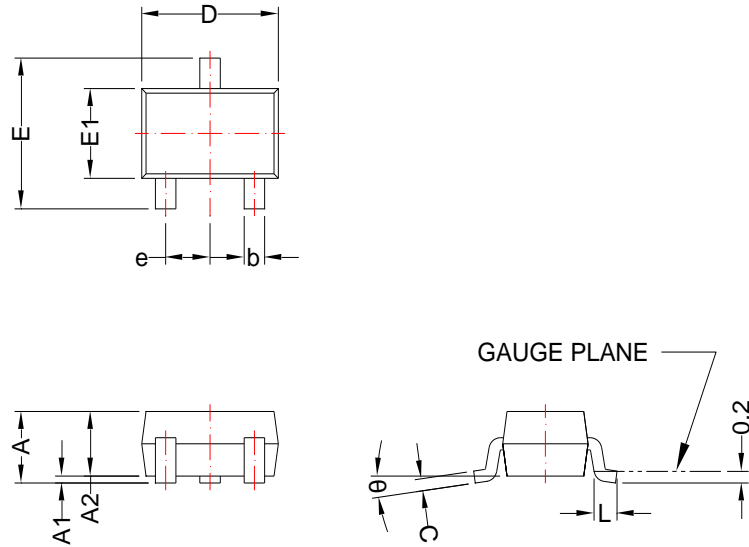


Fig. 11 Transient Thermal Response

## Package Dimension

### SOT-323









Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.80	1.10	0.031	0.043
A1	0.00	0.10	0.000	0.004
A2	0.80	1.00	0.031	0.039
b	0.20	0.40	0.008	0.016
c	0.08	0.26	0.003	0.010
D	1.80	2.20	0.071	0.087
E	1.80	2.40	0.071	0.094
E1	1.15	1.35	0.045	0.053
A	0.80	1.10	0.031	0.043
e	0.65 BSC		0.026 BSC	
L	0.26	0.45	0.010	0.018
$\theta$	0°	8°	0°	8°

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